DOCUMENT RESUME

ED 269 560 CE 043 783

TITLE	Carpentry--Math. Haywood County's Vocational-Math-Science Curriculum Alignment Project.
INSTITUTION	Haywood County Consolidated Schools, Waynesville, N.C.
SPONS AGENCY	North Carolina State Dept. of Public Instruction, Raleigh. Div. of Vocational Education.
PUB DATE	85
NOTE	56p.; For other guides in this series, see CE 043 781-792. Portions may be marginally legible due to small, light type.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Behavioral Objectives; *Building Trades; *Carpentry; Curriculum Development; *Evaluation Criteria; Integrated Curriculum; *Mathematics Skills; Secondary Education; *Trade and Industrial Education

ABSTRACT

A curriculum alignment chart is presented that translates mathematics goals/indicators into related vocational skills for the carpentry course in the secondary vocational education curriculum. The chart contains three columns that correlate (1) vocational education performance indicators, (2) vocational education competency and mathematics skill/concept, and (3) relevant mathematics competency indicators. A page that corresponds to the chart provides suggestions for instructing students in the skills listed on the chart and activities that might be appropriate. These activities may be sample test items and/or practical applications of skills learned. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

E. Brunet

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Activities and procedures funded by the Division of Vocational Education are governed by the philosophy of simple fairness to all. Therefore, the policy of the Division is that all operations will be performed without regard to race, sex, color, national origin, or handicap.

The following teachers from Haywood County participated in this project:

Nancie Autrey	Tuscola Senior High School
Edie Burnette	Pisgah Senior High School
Tommy Carswell	Tuscola Senior High School
Ray Chadwick	Tuscola Senior High School
Randy Dills	Waynesville Junior High School
Debra Earley	Pisgah Senior High School
Ralph Green	Pisgah Senior High School
Charles Howard	Tuscola Senior High School
Ray Pressley	Pisgah Senior High School
Barbara Wilson	Canton Junior High School

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 005 01. Identify correct symbols. 02. Learn alphabet of lines. 03. Identify correct dimensions. 04. Identify correct views. 05. Interpret notes, details. 06. Read linear scale.	005 Interpret a print. SKILLS: Dimensions Linear measurement	GRADE 7 7.10 Determine the areas of rectangular (including square) regions GRADE 8 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch GENRAL MATHEMATICS 5.02 Measure the length of an object to the nearest half-inch 5.04 Find the area of a rectangular region ALGEBRA I 13.04 Solve problems about perimeters and areas

VOCATIONAL EDUCATION COURSE Carpentry

005

INSTRUCTIONS TO STUDENTS: Place the letter of the correct answer in the blank in front of the statement on your answer sheet.

h 1. (——————————) -- Show the main outline of the structure including exterior walls, interior partitions, porches, patios, driveways, and interior walls.

(NOTE: These lines should be the outstanding lines on the drawing.)

a 2. (←——————→) -- Thin unbroken lines which designate dimensions.

g 3. (——————— . ——) -- Extend, but do not touch, the object lines and permit dimension lines to be drawn between them.

b 4. (– – – – – – – –) -- Short dashes used to show lines that are not visible from that view.

f 5. (— – — – — – —) -- A series of short and long dashes used to designate centers and provide a reference point for dimensioning.

c 6. (←— – – ——— – – ——→) -- Heavy lines consisting of a series of one long and two short dashes with arrows at each end pointing away from the area that is cut away for the purpose of sectioning.

e 7. (——~~~——~~~——) -- Used when an area cannot or should not be drawn entirely.

d 8. (←————) -- Used to connect a note or dimension to a part of the building.

i 9. _____ is the front view of a house.

a. Dimension lines
b. Hidden lines
c. Section lines
d. Leaders
e. Break lines
f. Center lines
g. Extention lines
h. Object lines
i. Front elevation
j. Short lines
k. Long lines

INSTRUCTIONS TO STUDENTS: Identify the symbols below by placing a letter in the blank space under the symbol.

a 1.

i 2.

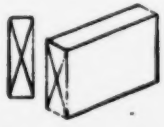
j 3.

h 4.

d 5.

e 6. S

c 7.

g 11. 

m 8. S_4

b 9.

k 10. (J)

a. Outside door
b. Double hung window
c. Lighting outlet
d. Duplex convenience outlet
e. Single pole switch
f. Three way switch
g. Rough lumber
h. Brick
i. Concrete
j. Insulation
k. Junction box
l. Range outlet
m. Four-way switch

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 006 01. Identify type, size and use of construction materials. 02. Compute math problems relating to square, board and linear feet. 03. Knowledge of finding totals.	006 Prepare a bill of material. SKILLS: Addition Subtraction Multiplication Division Whole numbers Fractions Decimals Area Cubic measure Volume Linear measure	GRADE 7 2.02 Add any three 4-digit numbers 2.04 Subtract any two 4-digit numbers 2.11 Divide a 4-digit number by a 2-digit number GRADE 8 2.04 Add decimal numbers 2.05 Find the difference between two decimal numbers 2.08 Multiply two decimal numbers 2.09 Divide a decimal number by a one digit whole number 2.10 Find the quotient of two decimal numbers 3.04 Add two fractions having unlike denominators such as 2, 3, 4, 5, 6, 8, 10, or 12 3.05 Subtract two fracitons having unlike denominators such as 2, 3, 4, 5, 6, 8, 10, or 12 3.10 Multiply two proper and/or improper fractions 3.11 Find the quotient of two fractions 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch 6.07 Determine the areas of a rectangle, square, triangle, parallelogram, and trapezoid 6.10 Determine the volume of a rectangular prism or right circular cylinder when given the formula and a picture with the dimensions indicated GENERAL MATHEMATICS 5.02 Measure the length of an object to the nearest half-inch 5.04 Find the area of a rectangular region

BEST COPY AVAILABLE

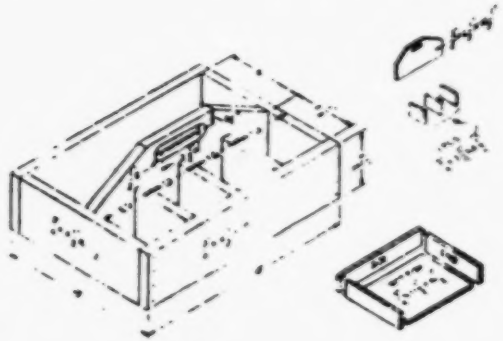
VOCATIONAL EDUCATION COURSE Carpentry

006

INSTRUCTIONS TO STUDENTS: Given the tools and materials, construct the tool, nail and bolt box according to the plans. You will have 2 1/2 hours to complete the job.

Observation Checklist

1. Layout or construction according to plans and measurements
2. Cuts made accurately and pieces assembled correctly
3. Work performed in an organized and safe manner
4. Proper tools are used correctly
5. Job completed in alloted time
6. Appearance compares favorably with commercial standards



CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 008 01. Learn to calculate waste materials by learning percentages of waste from books. 02. Take bill of material and add calculated waste to prepare purchase order.	008 Estimate materials for purchase. SKILLS: Percentages Whole numbers Addition Subtraction	GRADE 8 2.12 Determine the solution of a real world problem involving purchases totaling less than $20 with change to be made from a $20 bill 4.04 Find the percent of a given number e.g., a% of b = __ 4.05 Find a number when a percent of it is given, e.g., c% of __ = d 4.06 Find what percent one number is of another, e.g., __% of e = f GENERAL MATHEMATICS 4.12 Add and subtract money amounts 4.13 Multiply a money amount by a whole number or a decimal number 4.14 Divide a money amount by a whole number

BEST COPY AVAILABLE

BEST COPY AVAILABLE

VOCATIONAL EDUCATION COURSE Carpentry

008

INSTRUCTIONS TO STUDENTS: (Technical Information) In the problems listed below, select the most correct choice in each problem and mark this choice on the answer sheet.

1. A carpenter receives $5.00 per hour and works 8 hours a day for 5 days. How much does he receive for his labor?
   (a) $185.00, (b) $195.00, (c) $200.00, (d) $210.00

2. How many studs will be required to frame a partition wall that is 44 feet long if the wall has no opening and the studs are placed 16" on center?
   (a) 30, (b) 32, (c) 34, (d) 36

3. A contractor agrees to build a house for $22.00 per square foot. How much will he receive if the walls of the house are 24 feet wide, 36 feet long, and 8 feet high?
   (a) $19,000, (b) $19,200, (c) $19,500, (d) $19,800

4. A building is 24 feet wide and 36 feet long. What length of material must be ordered to cut the rafter using a 1/3 pitch?
   (a) 10 feet, (b) 12 feet, (c) 14 feet, (d) 16 feet

5. How many pieces of standard plywood placed vertically will it take to cover a room that is 10 feet by 12 feet with an 8 foot ceiling?
   (a) 9, (b) 11, (c) 13, (d) 14

INSTRUCTIONS TO STUDENTS: (Technical information) Listed below in Column A is a list of common construction materials that are used by the carpenter. Select the nominal size from Column B that is most correct for the material in constructing a typical small home and mark your selection on the answer sheet.

Column A Construction Materials		Column B Nominal Sizes
1. Ground	c	a. 4" X 8"
2. Plywood Sheathing	f	b. 1" X 6"
3. Joist	a	c. 2" X 6"
4. Studs	d	d. 2" X 4" or 2" X 6"-8"
5. Door	b	e. 2" X 12"
6. Rafter	g	f. 1" X 4"
7. Bridging	i	g. 2" X 2"
8. Girder	e	h. 2" X 4"
9. Stringers	h	i. 4' X 8'
10. Siding	l	j. 2" X 8"
		k. 1" X 2"

BEST COPY AVAILABLE

BEST COPY AVAILABLE

CURRICULUM ALIGNMENT CHART

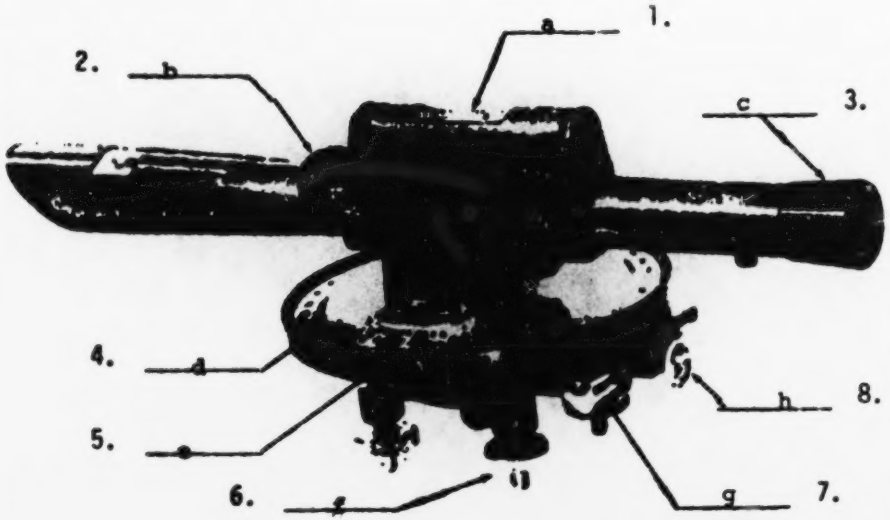
VOCATIONAL EDUCATION COURSE **Carpentry**

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 012 01. Identify instruments and their parts by studying pictures and illustrations in textbook. 02. Demonstrate comprehension by passing test on leveling instruments	012 Use leveling instruments. SKILLS: Measurements Angles Degrees Whole numbers Decimals	GRADE 8 2.01 Read and write numbers with as many as three decimal places 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth or an inch 6.07 Determine the areas of a rectangle, square, triangle, parallelogram, and trapezoid INTRODUCTORY ALGEBRA (PART ONE) 10.05 Find the measure of one of the angles of a triangle, given the measure of the two other sides GENERAL MATHEMATICS 5.02 Measure the length of an object to the nearest half-inch GEOMETRY 1.08 Use a protractor to find the measure of an angle

BEST COPY AVAILABLE

VOCATIONAL EDUCATION COURSE Carpentry

012 **INSTRUCTIONS TO STUDENTS:** Identify the parts of the builder's level. Place the letter beside the correct name and beside the correct number on your answer sheet.



a. Spirit level
b. Focusing knob
c. Eyepiece
d. Horizontal circle
e. Index pointer
f. Leveling screw
g. Tangent screw
h. Clamp screw
i. Target
j. Rod

INSTRUCTIONS TO STUDENTS: Use the transit level and layout four 2" X 2" corner stakes of a building 15' X 20'. The stake in the highest corner must be 4" above ground level.

INSTRUCTIONS TO STUDENTS: Use the transit level for setting a row of five 2" X 2" stakes in a straight line. Space the stakes 5' apart.

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 013 01. Use the transit level for setting grade stakes. 02. Use the 6-8-10 method for checking a right angle. 03. Measure the diagonals of a square, a rectangle with a tape to check squareness. 04. Set batter boards around layout stakes.	013 Layout building lines and grade levels from the foundation plan. SKILLS: Slope Angles Measurement Bisect prints	GRADE 8 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch 8.02 Use the Pythagorean Theorem to determine the length of the hypotenuse of a right triangle INTRODUCTORY ALGEBRA (PART TWO) 7.02 Find the slope of a line GENERAL MATHEMATICS 5.02 Measure the length of an object to the nearest half-inch GEOMETRY 1.08 Use a protractor to find the measure of an angle

BEST COPY AVAILABLE

VOCATIONAL EDUCATION COURSE Carpentry

013

INSTRUCTIONS TO STUDENTS: Lay out building lines and grade levels from the foundation plan below.

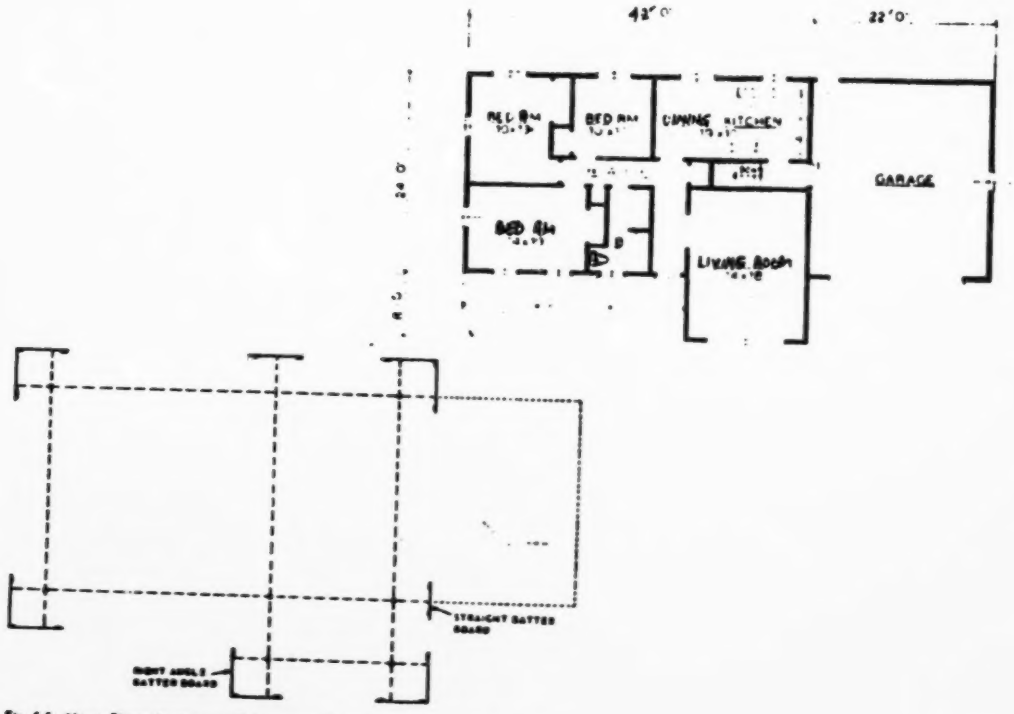


Fig. 6-6. Above. Plans showing overall dimensions. Below. Building lines set up around excavated area. The actual excavation should be at least 2 ft. outside of these lines.

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 014 01. Secure descriptions, sizes, and capabilities of footings from textbook. 02. Demonstrate adequate knowledge of footings by testing.	014 Learn footing design and nomenclature. SKILLS: Square roots Angles Proportions	GRADE 7 7.10 Determine the areas of rectangular (including square) regions GRADE 8 4.02 Find the missing term of a proportion INTRODUCTROY ALGEBRA (PART TWO) 3.06 Use proportions to solve problems GENERAL MATHEMATICS 5.04 Find the area of a rectangular region ALGEBRA I 13.04 Solve problems about perimeters and areas GEOMETRY 1.08 Use a protractor to find the measure of an angle

BEST COPY AVAILABLE

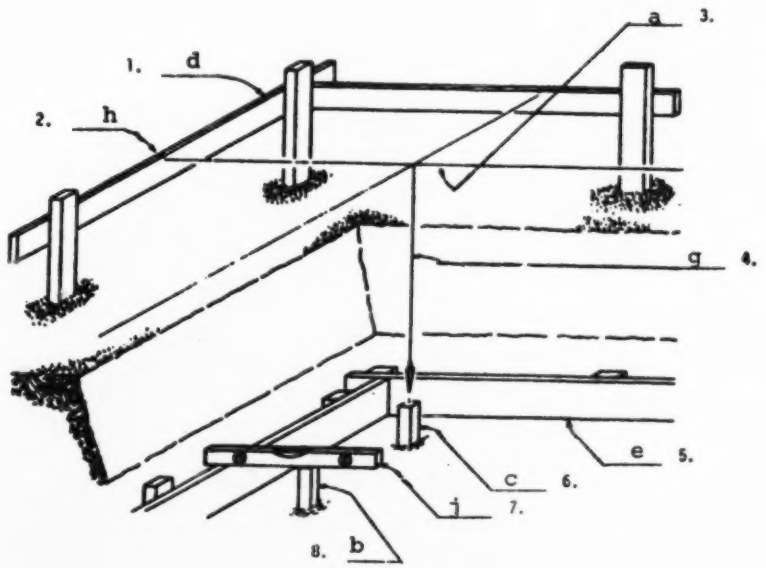
SELECTED TEACHER HELPS

VOCATIONAL EDUCATION COURSE Carpentry

014

INSTRUCTIONS TO STUDENTS: Identify the terms for setting up building lines and forms for footings. Place the correct letter beside the term which identifies the numbered part on the diagram. Place your answers on your answer sheet.

a. Line
b. Grade stake
c. Corner stake
d. Batter board
e. Outside form for footing
f. Stud
g. Plumb line
h. Nail
i. Brace
j. Level



INSTRUCTIONS TO STUDENTS: Match the correct term with the appropriate definition. Place the letter of the term before the number on the answer sheet.

e 1. A piece of wood or other material that directs, resists, or supports weight or pressure.

l 2. A strip of wood or metal fastened across a form for temporary positioning or to replace a form tie.

i 3. A wire or metal crosstie used to hold the pressure of wet concrete and maintain the proper wall thickness.

k 4. That portion of a wall upon which the building rests.

h 5. The level of the finished concrete in a form.

b 6. A groove left in the concrete by removal of the key.

c 7. A piece of material nailed across a splice to strengthen and hold it together.

a 8. Wide boards, plywood, or metal that make up the face of the form.

d 9. A block of wood that is used to hold the sides of the form apart, and is removed as the concrete is poured; it may also be an integral part of the form tie.

j 10. A short piece of steel bar inserted through a bulkhead to tie adjoining pours together.

n 11. Small boards or steel bars sharpened on one end and driven into the ground to support a form.

f 12. An enlarged area at the base of a wall or another object used to distribute the weight of the superstructure.

a. Sheathing
b. Key way
c. Scab--A
d. Spreader
e. Brace
f. Footing
g. Key--A
h. Grade point
i. Form tie
j. Dowel
k. Foundation
l. Cleat
m. Line
n. Stake

BEST COPY AVAILABLE

BEST COPY AVAILABLE

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 017 01. Identify and learn how to construct stairways and other framing openings from studying textbooks and taking field trips whenever a live project is not available. 02. Identify correct procedures for framing an opening.	017 Learn how to construct framing openings, such as stairwells and chimneys. SKILLS: Slopes Measurement	GRADE 8 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch INTRODUCTORY ALGEBRA (PART TWO) 7.02 Find the slope of a line HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

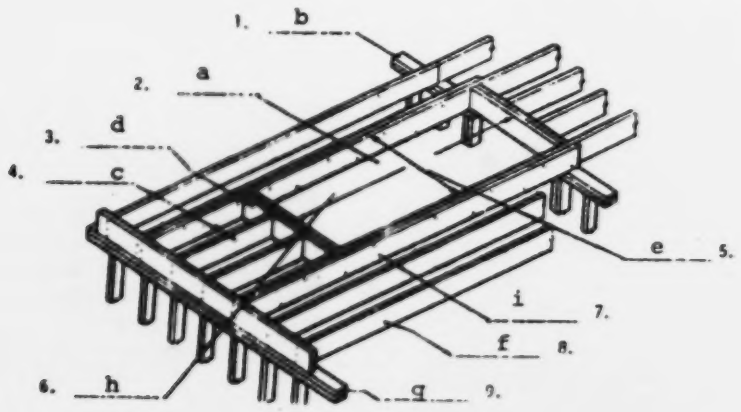
BEST COPY AVAILABLE

VOCATIONAL EDUCATION COURSE Carpentry

017

INSTRUCTIONS TO STUDENTS: Identify the members of a Stairwell opening from the list below. Place your answer in the space provided on your answer sheet.

a. Stairwell opening
b. Bearing wall or beam
c. Tail joist
d. Double headers
e. Width
f. Joist
g. Wall or foundation
h. Length
i. Double trimmer joists
j. Steed



BEST COPY AVAILABLE

BEST COPY AVAILABLE

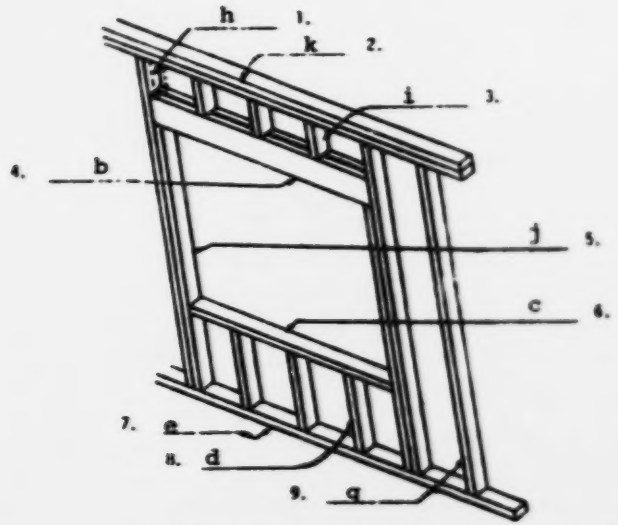
CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 018 01. Use textbooks to secure nomenclature and installation procedures for wall and ceiling framing. 02. Obtain layout, cutting, and installation skills for wall and ceiling framing from a live project or scale models.	018 Identify, layout, cut, and install wall and ceiling framing. SKILLS: Bisecting Square Measuring devices	GRADE 8 5.06 Use a compass and straight edge to bisect a segment and an angle 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch HEATH LEVEL 6 9-6 Measure length with a 1/16-inch ruler.

VOCATIONAL EDUCATION COURSE Carpentry

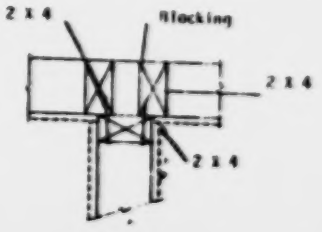
018 **INSTRUCTIONS TO STUDENTS:** Match the correct identifying term with the appropriate numbered item in the illustration. Place the correct letter in the blank provided on your answer sheet.



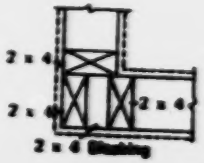
a. Joist	d. Cripple stud	g. Full stud	j. Trimmer
b. Header	e. Sole plate	h. Optional	k. Top plate doubled after erection
c. Rough Sill	f. Brace	i. Cripple	

CREDIT		OBSERVATION CHECKLIST
25	___1.	Layout or construct according to plans and measurements
25	___2.	Cuts made accurately and pieces assembled correctly.
15	___3.	Work performed in an organized and safe manner
15	___4.	Proper tools are used correctly
10	___5.	Job completed in alloted time.
10	___6.	Appearance compared favorably with commercial standards.

INSTRUCTIONS TO STUDENTS: Construct one T-Post and one Corner Post using the drawing below as your guide. Items needed: Seven 2" X 4" studs; Claw hammer; Electric circular saw; Saw horses; 16 d nails; Extension cord.



T-Post



Corner Post

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

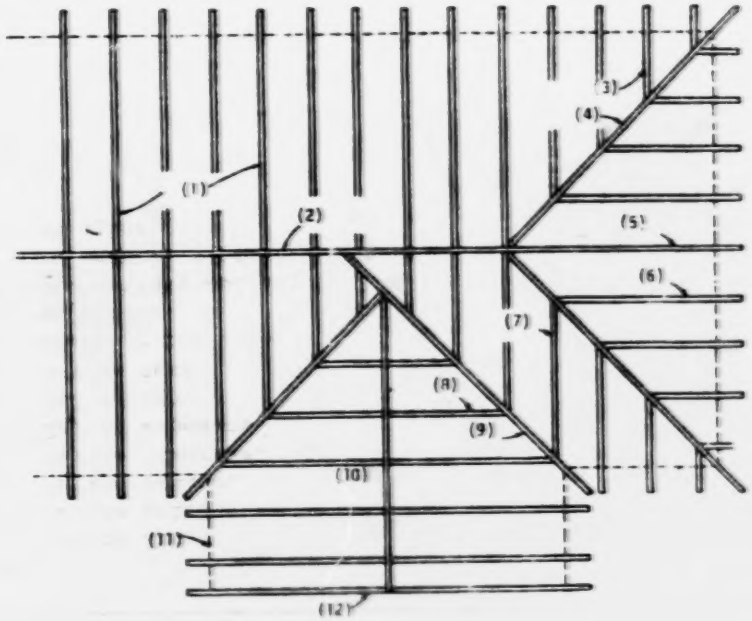
VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 019 01. Identify various roof shapes. 02. Construct a drawing, showing a plan view of a roof frame and label its various kinds of rafters. 03. Use framing square to layout rafter for correct pitch. 04. Study textbook illustrations to learn the parts of a rafter, truss, and basic terms used in rafter layout.	019 Learn principles of various types of roof framing. SKILLS: Polygons Slopes Construct Geometric shapes Measurement	GRADE 7 6.04 Identify a polygon with no more than eight sides GRADE 8 5.04 Name and describe such space figures as the right circular cylinder, rectangular prism(box), triangular prism, sphere, cone, and pyramid 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch INTRODUCTORY ALGEBRA (PART TWO) 7.02 Find the slope of a line GEOMETRY 7.04 Classify a polygon according to the measure of its sides or angles 14.02 Construct an angle congruent to a given angle 14.04 Construct a line perpendicular to a line through a point on the line 14.05 Construct a line perpendicular to a line through a point not on the line 15.05 Find the slope of the line given two points on the line HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

VOCATIONAL EDUCATION COURSE Carpentry

019

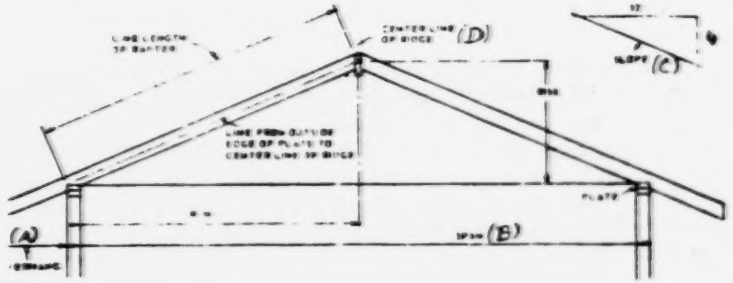
INSTRUCTIONS TO STUDENT: Choose the correct term from the list below and place the letter in the appropriate blank beside the letter. Place your answers on your answer sheet.

1	a. [illegible]	12	f. Gable
6	b. Hip jack	11	g. Building line
7	c. Cripple jack	5	h. Ceiling joist
9	d. Valley	4	i. Hip
10	e. Ridge	8	j. Valley jack



INSTRUCTIONS TO STUDENTS: Use a framing square and lay out a 2" X 4" rafter for the given building.

A = 1' 0" B = 12' 0" C = 4/12" D = 3/4"



CREDIT	OBSERVATION CHECKLIST
25	___1. Layout or construction according to plans and measurements
25	___2. Cuts made accurately and pieces assembled correctly.
15	___3. Work performed in an organized and safe manner.
15	___4. Proper tools are used correctly
10	___5. Job completed in alloted time
10	___6. Appearance compares favorably with commercial standards.

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 021 01. Define slope. 02. Define pitch. 03. Define square. 04. Define coverage. 05. Define exposure. 06. Define lap. 07. Define butt. 08. Identify roofing materials. 09. Demonstrate ability to install asphalt shingles.	021 Learn roofing terminology; such as, slope, pitch, square, coverage, exposure, lap, butt, etc. SKILLS: Terms Skills	GRADE 7 6.04 Identify a polygon with no more than eight sides GRADE 8 5.04 Name and describe such space figures as the right circular cylinder, rectangular prism(box), triangular prism, sphere, cone, and pyramid 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch INTRODUCTORY ALGEBRA (PART TWO) 7.02 Find the slope of a line GEOMETRY 7.04 Classify a polygon according to the measure of its sides or angles 14.02 Construct an angle congruent to a given angle 14.04 Construct a line perpendicular to a line through a point on the line 14.05 Construct a line perpendicular to a line through a point not on the line 15.05 Find the slope of the line given two points on the line HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

021 **VOCATIONAL EDUCATION COURSE** Carpentry

INSTRUCTIONS TO STUDENTS: Match the correct names of the roofing nomenclature with the numbered parts of the diagram. Place the correct letter in front of the number on your answer sheet.

a. Metal drip edge applied over felt along rake

b. 9" starter strip or course of shingles inverted

c. Metal drip edge

d. Wood deck or shething

e. Building felt (#15)

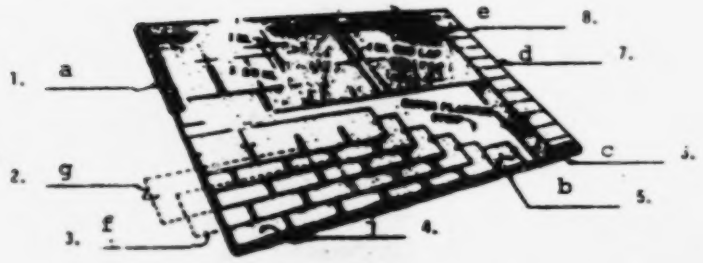
f. Start second course with full strip minus 1/2 tab

g. Start third course with full strip minus first tab

h. Ridge cap

i. Flashing

j. Start first course with full strip



3-Tab Square Butt Shingles

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 022 01. Identify roofing materials. 02. Demonstrate ability to install asphalt shingles.	022 Acquire skills by installing building paper and asphalt shingles on a small building. SKILLS: Measurement Divide fractions	GRADE 8 3.11 Find the quotient of two fractions. GENERAL MATHEMATICS 3.21 Divide two fractional numbers and mixed numbers HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

VOCATIONAL EDUCATION COURSE Carpentry

Q22

INSTRUCTIONS TO STUDENTS: Using a flat area the student will use the chalk line to lay out a 10' square. Cover the square with 15 lb. roofing paper. Chalk off necessary installation lines for asphalt shingles. Install the shingles with the lines in the same manner as you would on a roof except for nailing and trimming ends.

Checklist

1. Layout or construction according to plans and measurements
2. Shingles assembled correctly
3. Work performed in an organized manner
4. Proper materials used
5. Job completed in the allotted time
6. Appearance compares favorably with commercial standards

BEST COPY AVAILABLE

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

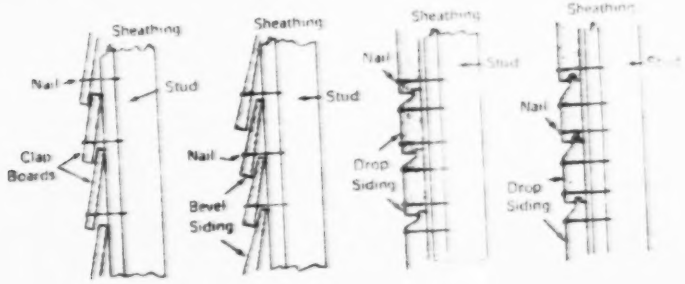
VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 024 01. Use textbook for identification and construction principles. 02. Participate in a live project where possible to develop skills of application. 03. Explain wall and cornice details, trim boards, wall coverings, and trim memebers around doors and windows.	024 Demonstrate the ability to identify and apply exterior wall finish. SKILLS: Measurement	GRADE 7 7.06 Solve a problem involving linear with centimeters, meters, or appropriate customary units requiring addition or subtraction with no conversion GRADE 8 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

BEST COPY AVAILABLE

VOCATIONAL EDUCATION COURSE Carpentry

024

INSTRUCTIONS TO STUDENTS: Match the correct name of the siding with the numbered diagram and place your answer on your answer sheet.



c 1.

a 2.

d 3.

b 4.

a. Bevel Siding (Lap Siding)

b. Drop Siding (Tongue-and-Grooved)

c. Clap Boards (Lap Siding)

d. Drop Siding (Shiplapped)

BEST COPY AVAILABLE

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 025 01. Develop a basic understanding of thermal and sound insulation. 02. Show comprehension by passing test on thermal and sound insulation.	025 Develop an understanding of thermal and sound insulation which will generally cover insulation materials, heat losses, sound intensity and transmission, vapor barriers, and ventilation. SKILLS: Area Measurement equipment Parallels	GRADE 8 6.07 Determine the areas of a rectangle, square, triangle, parallelogram, and trapezoid GENERAL MATHEMATICS 5.04 Find the area of a rectangular region 10.03 Identify intersecting, parallel, and perpendicular lines ALGEBRA I 13.04 Solve problems about perimeters and areas GEOMETRY 6.01 Identify parallel lines and planes, and skew lines 14.07 Construct a line parallel to a line through a given point

BEST COPY AVAILABLE

BEST COPY AVAILABLE

025 VOCATIONAL EDUCATION COURSE Carpentry

INSTRUCTIONS TO STUDENTS: Match the word or words at the left with the best related word or term at the right. Place the letter in the spaces provided for you on your answer sheet.

a	1. Square feet	a. Width X length
h	2. Insulation material	b. Heat transfer
i	3. Thermopane	c. Polystyrene foam
b	4. Conduction	d. Width
j	5. Loose fill	e. Length
f	6. Sound control	f. Inside wall insulation
c	7. Rigid	g. Thickness X width
e	8. Linear feet	h. Rock wool
k	9. Heat	i. Insulated glass
l	10. Purchase order	j. Poured insulation
		k. Absence of cold
		l. Estimating

INSTRUCTIONS TO STUDENTS: Place a (+) in front of the statement if it is TRUE and a (0) in front of the statement if it is FALSE. Place your answers on your answer sheet.

+ 1. Conduction is the act or process of transmitting heat through a conductor.

+ 2. Convection is the transfer of heat across space by currents of air or by a liquid.

0 3. Insulation in a building speeds up the transfer of heat on cold days through the outside walls.

0 4. Fiberglass is a good insulator, but it is seldom used for house insulation.

+ 5. A vapor barrier is a material or surface which is highly resistant to the passage of vapors, some of which are metal foil, polyethylene films, and asphalt impregnated substances.

0 6. Bats are rolls of insulation that have a thickness over 6".

+ 7. Loose fill insulation may be fibrous, granular, or powdered.

+ 8. Radiation is a natural phenomena by which heat energy passes through space.

+ 9. Ceilings, floors, and outside walls should have proper insulation to prevent heat loss in winter and cold loss in summer.

0 10. Insulation is a waste of good money but necessary to satisfy the building code.

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 027 01. Learn floor types and installation procedures. 02. Install or describe floor installation.	027 Develop basic knowledge of the types of floors, coverings, and how to install them. SKILLS: Measurement Money problems	GRADE 8 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimeter or eighth of an inch GENERAL MATHEMATICS 4.12 Add and subtract money amounts HEATH LEVEL 2 9-4 Measure using the customary system. HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

BEST COPY AVAILABLE

027

VOCATIONAL EDUCATION COURSE Carpentry

INSTRUCTIONS TO STUDENTS: Place a (+) in front of the statement if it is TRUE and a (0) in front of the statement if it is FALSE. Place your answers on your answer sheet.

+ 1. The species of wood most commonly used for finish flooring in residence structures is Oak.

+ 2. Composition flooring a resident flooring includes asphalt tile, vinyl-asbestos tile, vinyl tile, rubber tile and linoleum.

0 3. Moisture content of hardwood flooring is of little consequence so long as you install a vapor barrier paper underneath the flooring.

0 4. Linoleum or tile is safely used over particle board.

+ 5. In modern construction, plywood is used for subfloor.

0 6. When laying strip flooring, the tongue is placed towards the wall when nailing the first piece.

+ 7. The square footage of a living room floor is obtained when you multiply the length by width.

0 8. Wood block flooring is never installed on a concrete floor.

+ 9. A chalk line is a useful tool to use when installing floor tile.

+ 10. A carpenter's square is useful for laying out a center line at a right angle.

BEST COPY AVAILABLE

CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

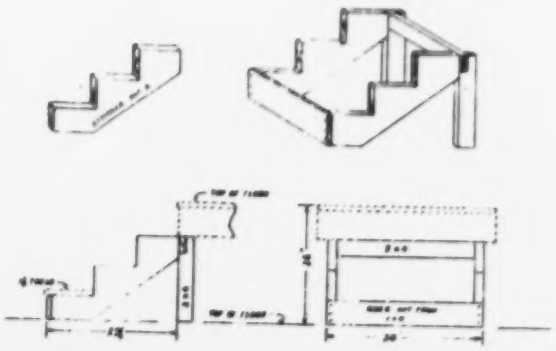
VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS		
028 01. Identify stair componenets. 02. Use framing square to layout a simple set of steps.	028 Construct a simple set of stairs. SKILLS: Measurement Scale reading Degrees of angles	GENERAL MATHEMATICS 6.02 Interpret information displayed in tables and diagrams HEATH LEVEL 2 9-4 Measure using the customary system. HEATH LEVEL 6 9-6 Measure lengths with a 1/16-inch ruler.

028 VOCATIONAL EDUCATION COURSE Carpentry

INSTRUCTIONS TO STUDENTS: Using the tools and materials given, construct the outside steps according to the plan below. You will have two hours to complete the job.

Checklist

1. Layout or construction according to plans and measurements
2. Cuts made accurately and pieces assembled correctly
3. Work performed in an organized and safe manner
4. Proper tools are used correctly
5. Job completed in alloted time
6. Appearance compares favorably with commercial standards



CURRICULUM ALIGNMENT CHART

VOCATIONAL EDUCATION COURSE Carpentry

VOCATIONAL EDUCATION PERFORMANCE INDICATOR	VOCATIONAL EDUCATIONAL COMPETENCY MATH SKILL/CONCEPT	RELEVANT MATH COMPETENCY INDICATORS
INDICATORS 029 01. Construct a simple cabinet with appropriate hardware. 02. Know standard cabinet materials and dimensions.	029 Develop basic skills and understanding of cabinet construction and installation. SKILLS: Measurement Center of a circle Addition of fractions Subtraction of fractions	GRADE 8 3.04 Add two fractions having unlike denominators such as 2, 3, 4, 5, 6, 8, 10, or 12 3.05 Subtract two fractions having unlike denominators such as 2, 3, 4, 5, 6, 8, 10, or 12 6.02 Determine the length, width, or height of an object or drawing by measuring to the nearest millimter or eighth of an inch GEOMETRY 15.14 Find the center and radius of a circle

VOCATIONAL EDUCATION COURSE Carpentry

029

INSTRUCTIONS TO STUDENTS: Fill in the blanks with the correct word or words from the list given at the right. Place your answers on your answer sheet.

1. The standard height of a kitchen cabinet base is ___.
2. The standard height of an overhead cabinet is ___.
3. The standard depth of a kitchen cabinet is ___.
4. A recess at the bottom of a cabinet is called the ___.
5. The most common type of plywood for cabinet doors is ___.
6. Cabinet tops are veneered with ___ to make them durable and beautiful.
7. Two basic types of doors are flush and ___.
8. A common adhesive for securing the laminate plastic to the base top is ___.
9. All sanding is completed before the ___ is applied.
10. Two types of cabinet door latches are friction and ___.

a. 30"
b. Birch
c. Recessed
d. 34" - 36"
e. 12"
f. Too kich
g. Fir
h. Laminated plastic
i. Contact cement
j. Stain
k. Glue
l. Magnetic
m. 25"

BEST COPY AVAILABLE